

July 10th, 1948
P.O. Box 4868
Cleveland Park Station
Washington, D.C.

Mr. Ralph E. Williamson
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Richmond Hill, Ontario
Canada

Dear Ralph:

I have your letter of June 15th. My values of R.A. were obtained by making calculations from the Nautical Almanac using the same year as the date of the observations.

Sanders data was originally published in a report entitled "Measurements of Cosmic Noise at 60mc" by K.F.Sander. This is a Radio Research and Development Establishment, research report #285 dated 31st May 1945 at Malvern, Wores., England. The same set of experiments are described in a somewhat different manner in an article entitled "Measurement of Galactic Noise at 60mc" by K.F.Sander in Part IIIA of Journal of Inst. of Elect. Engrs. (London) Mar./May 1946, Vol 93, No.10, ppl487-1489.

In regard to the setting of my meridian transit on true north, I was quite fortunate. When my first few sets of 480mc solar data were secured I computed (for several days) when the sun should transit, and compared this time with the observed time of transit. Due to roughness of the curve caused by auto noise, the latter time could not be secured better than about $\frac{1}{2}$ or $-\frac{1}{2}$ minute of time. The observed time in all cases was within $\frac{1}{2}$ or ± 1 minute of time of the calculated time. Thus, I would estimate that my machine was within $\frac{1}{2}$ or $-1\frac{1}{2}$ minutes of time of true north-south meridian. This is about $\frac{1}{2}$ or -0.4 degree possible error. Since the cosmic static data was only read to $\frac{1}{2}$ or -1 minute of time and is probably not that accurate (especially at low level), I do not believe that this error in azimuth setting of the machine will effect the accuracy of data.

This subject is discussed by Sander in his Jnl.I.E.E. article. He concludes that a bearing error of a few degrees probably existed in his apparatus but does not state which way. Perhaps you can figure this out from his east and west curves. I noticed the same thing when I reduced his original data, but I merely averaged the two and assumed the error to be cancelled. I do not believe that Jansky mentioned this subject of bearing error anywhere in his various articles.

I am enclosing with this letter a copy of a memorandum which I hope is self explanatory. The variations of intensity with direction displayed on the various curves I sent you in May can easily be accounted for by variations in optical depth. If you wish additional testimony, that cosmic static is strong below 100mc, I suggest that you see "Measurement of Galactic Noise in Frequency Range 40 to 200mc" by L.A. Moxon, Admiralty Signal Establishment Extension report XRC3/46/7, dated 25 Sept. 1946 and Nature 23rd, Nov. 1946, Vol 158, No.4021, pp 758 & 759.

I wish you well in your calculations. If you can make anything out of the enclosed memorandum, please let me know whether or not you agree with me and why the two methods of observing radiation from the cube appear to give different results.

Best regards,

Grote Reber